

Let's communicate



RS-485 / TTL / Multimode Fiber Optic Converter



ELO E175

Operation manual

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1.0 Introduction

RS-485 is a half-duplex interface with the symmetric signals. Up to 32 partners can be interconnected via the twisted pair. The maximum range is 1200 m which can be increased using repeaters.

TTL signals are mainly designed to the logic components interconnection inside the board. The wire length can be only a few meters.

1.1 Use of the converter

The fiber optic cable is immune to electromagnetic interference and atmospheric electricity influences, it provides maximum DTE protection and high communication reliability.

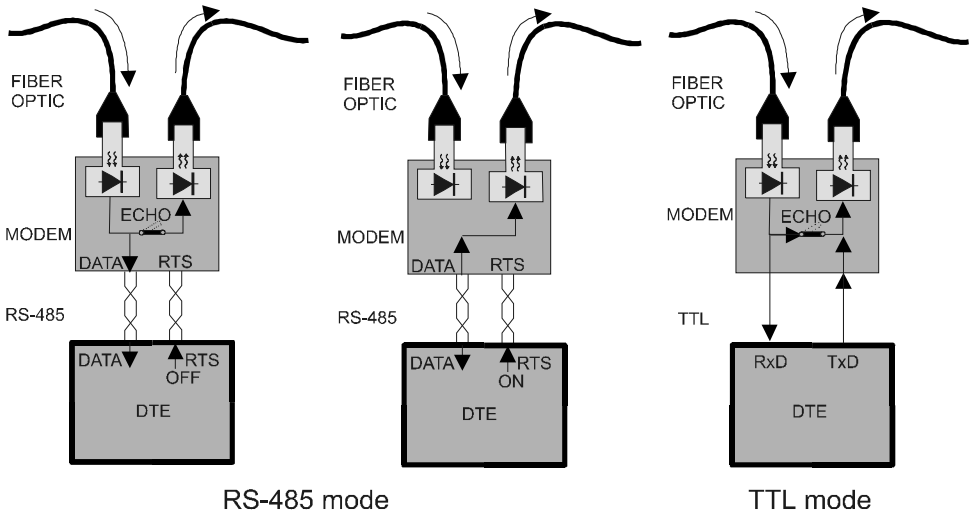
2.0 Operation principles

The “ECHO” mode switch is provided with this converter. This mode is mainly suitable for more devices connection into the optic loop network. When “ECHO=ON” mode (DTE is SLAVE) the data from the receiving optic fiber are copied to the transmitting optic fiber. In case DTE is MASTER the ECHO is disabled “ECHO=OFF”.

When in RS-485 mode the converter works in the half-duplex mode. The signal from the receiving optic fiber copies to the RS-485 link. The DTE provided with RS-485 interface receives the data. If the DTE is to transmit the RTS signal has to be set and then the data from the DTE flow through the RS-485 link to the optic transmitter.

When in TTL mode the DTE – converter connection is duplex. In “ECHO=ON” mode the data received from the optic line are always copied to the DTE and the optic transmitter. The data collision can occur if the DTE transmits the data at the same time when the data from the remote DTE are received. For this reason, the remote and local DTE must not transmit concurrently. The SW DTE device has to solve these situations.

When only two DTE are interconnected the ECHO receiver has to be in OFF position.



3.0 Installation

This part describes the ELO E174 converter installation principles.

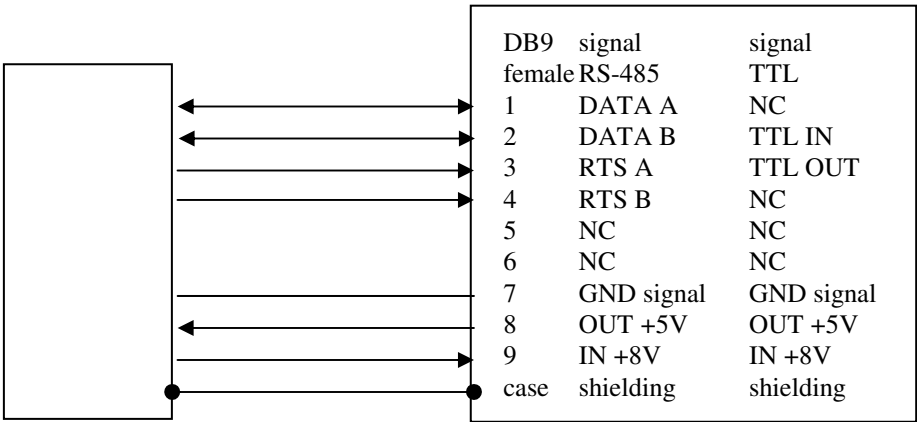
3.1 Optic link connection

ST 400 connectors are used to connect the fiber optic cable. To connect E 175, the TRANSMIT connector of the local converter has to be connected to the RECEIVE connector of the remote converter and the RECEIVE of the local converter has to be connected to the TRANSMIT connector of the remote one. The cable has to be multimode 50/125 or 62.5/125µm and it should not be longer than c.2-3km.

3.2 RS-485/TTL interface connection

The RS-485/TTL interface connector is DB9F (female), signals assignment to the contacts (see the Fig.). The interface mode (RS-485 or TTL) can be selected by switch. In TTL mode DTE can be connected to the converter via the 3m long cable. The length of RS-485 cable can be up to 1200 m.

Warning!
I/O switch must be in the position corresponding with the interface of DTE!



DTE

CABLE

CONNECTOR

3.3 Power supply connection

To supply the converter, the external power supply of 6V via SCJ 2.5mm connector (yellow diode labelled 6V indicates it) or from the DTE via 9 contact (IN+8V) is used. This lay out enables to back up the converter supply. The green diode labelled 8V indicates the supply from the DTE. The DTE and the user receive the external power supply information via OUT+5V signal. The external supply of 6V is isolated from the RS-485/TTL link. The maximum take off is 170mA.

Caution!

Do not connect the DC connector if the supply is on.

4.0 Specification

4.1 Parameters

Interface	RS-485/TTL
Control signals	RTS – in RS-485 mode None in TTL mode
RS-485/TTL connector	DB9F
Transmission mode	TTL - full duplex RS-485 – half-duplex

4.2 Optical parameters

Wavelength	820 nm, multimode fibre
Optic fibre	50/125 or 62.5/125 μm
Connectors	ST
Maximum data rate	115 200 bps

4.3 Other

Supply	external DC supply of 6V/200mA galv.isolation, DC supply of 8V/170mA from DTE
Dimension: Width	55 mm
Length	80 mm
Height	20 mm
Weight	80 g
Stocking temperature	- 10° to + 55° C
Working temperature	+ 0° to +50° C
Humidity	0 – 85% (non-condensing)

5.0 Testing

When the power supply is connected the appropriate diode has to be alight. At least one of diodes placed next to the DC connector must be alight. The LED diodes respective to the optic transmitter and receiver must blink during transmission.



6.0 Troubleshooting

Symptom	Action
The modem does not work after installation	Check if the optic cables and the RS-485/TTL cables are connected properly. Check RS-485/TTL selection. Check the ECHO switch position. Check the power supply.
Connection in normal operation quit working.	Check the power supply. Check if the cables are connected properly. Check if the power supply is on.

7.0 Ordering Information

Supply code is ELO E175.

ELOE175ZKE001

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